Port Programs Related to Air Quality Improvement

Presented by

Robert Kanter, Ph.D.

Director of Planning and Environmental

Affairs





Port of Long Beach Economic Impacts

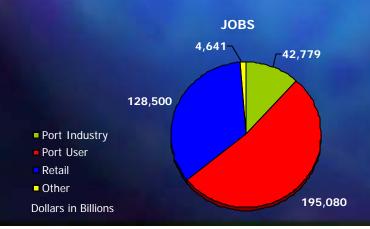
IMPACT CA	
SUMMARY	(Impact 2001)
Jobs	371,000
Wages/Salaries	\$ 16.3 billion
Business Sales	\$ 53.0 billion

IMPACT U.S.	
SUMMARY	(Impact 2001)
Jobs	1,399,997
Wages/Salaries	\$ 46.9 billion
Business Sales	\$ 146.5 billion

State Direct Expenditures Generate Port Impacts

- \$3.3 billion spent for Port services.
- \$11 billion spent for wholesale distribution of goods moved through the Port.
- \$8 billion spent for retailing finished goods moved through the Port.
- \$6.5 billion in California products exported through the Port purchased overseas.

State Impacts by Category

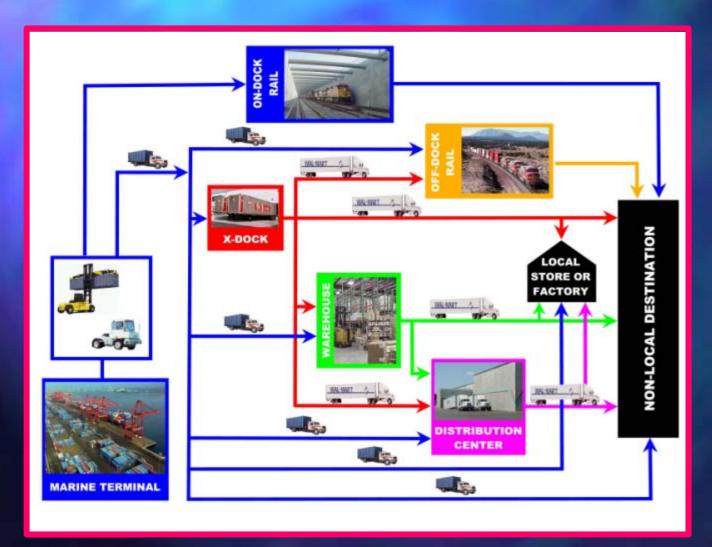






Trade and Goods Movement

.....where does the Port fit?





Sources and Challenges









Air Quality Improvement: No Silver Bullet

- Same Problem Different Port
- Air Quality Improvement: One source at a time
- Sources and Challenges
- Target Pollutants
- Maritime Goods Movement Sources:
 Ongoing Efforts



Target Pollutants: NO_x & PM

- NO_x Nitrogen Oxides: An ozone precursor that significantly contributes to smog.
- Particulate Matter: PM₁₀ Microscopic particles that includes soot from diesel exhaust. Toxic air contaminant.
- The South Coast Air basin exceeds Federal Air Quality Standards for both ozone and particulate matter.



Maritime Goods Movement sources

Vessels



- Particulates from smoke stack blows when engine started up
- Complaints/Damage from fallout
- Education/Outreach to vessel masters
- Training security
 personnel and AQMD
 reporting







Vessel Speed Reduction Program

- Goal reduce NOx from transiting vessels
- Voluntary-MOU with Ports, Regulatory, MAREX, PMSA, SASC
- Currently ~50% participation
- ~1 ton/day current reduction





Vessel Retrofit Demonstration Project

- Retrofit demonstration project on existing vessel
- Maritime Working Group-CARB, EPA, Ports, Vessel operator
- Goal-NOx and PM reduction
- Fuel emulsification prior to injection





POLA Shoreside Electrical Power

- China Shipping litigation settlement
- Committed to 70% of the vessel calls. Cost Effectiveness????
- Barge support vessel required
- Rolled out in June 21, 2004
- Part of AMP



POLB Shoreside Electrical Power

- Voluntary program with BP/POLB
- POLB make shore side improvements
- BP to retrofit at least two vessels
- Minimum of 120 calls over 10 years
- BP responsible for all Operational costs
- Other future projects w/ berth will require mitigation-possible cold ironing





Maritime Goods Movement sources

Terminal and Landside Equipment



Retrofit of Tenant's Diesel Equipment & use of Alternative Fuel



Other Terminal Related Measures

- Container cranes electrified
- Many LPG forklifts
- O₂ Diesel being used in selected pieces of equipment
- Electric dredges or dredges using emulsified diesel



Maritime Goods Movement sources

On Road Vehicles



Port Owned Equipment

- Port owned and operated equipment limited
- "Practice what we preach"
- Use fleet vehicles with alternative fuels
- CNG & hybrid Security cars
- Vacuum & LPG street sweepers
- O₂ Diesel for heavy duty equipment





Gateway Cities Fleet Modernization Program

POLB and Cities teamed up

 Incentives average \$25,000 per truck

 Owner pays about one third of total truck cost

 Old truck engine and chassis are <u>permanently</u> destroyed

Trucker saves about \$1700 per year in fuel costs

 Typical replacement truck emits about 50% less NOx and 85% less PM



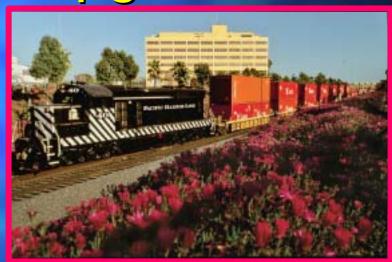
Maritime Goods Movement sources

Locomotives



Locomotive Fleet Upgrade

- PHL operates locomotives in Port
- Negotiating new agreement
- Replace all old engines with much cleaner
 Tier II engines
- Include Green Goat (hybrid) and LNG engines as part of fleet
- Future engine purchases equal to/or cleaner







Important Miscellaneous Air Related Efforts

- Emissions inventory of Port sources
- Requirement for all construction equipment to use ultra low sulphur diesel
- Grade separations (including Alameda Corridor) eliminate idling and reduce emissions
- On-dock railyard eliminates drayage trips
- LNG Demonstration project
- Ratify Marpol Annex VI



Future Efforts

- Create incentives to "cold iron" vessels
- Improve participation in the vessel speed reduction program
- Develop strategies to reduce Port truck trips
- Infrastructure/Efficiency Strategies
- SECA Designation Support
- Lease Strategies (e.g. alt fuels)





